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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,125	05/10/2002	Yasuharu Asano	450101-03685	9907
20999	7590	02/22/2006	EXAMINER	
FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			WOZNIAK, JAMES S	
			ART UNIT	PAPER NUMBER
			2655	

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/019,125

Applicant(s)

ASANO ET AL.

Examiner

James S. Wozniak

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 1/25/2001 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language (*JP 57-86899 and 58-52696*). It has been placed in the application file, but the information referred to therein has not been considered.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The following title is suggested: "Speech Recognition Device, Method, and Recording Medium Utilizing Acoustic and Linguistic Scores for Word Selection."

### ***Claim Objections***

4. **Claims 1-9** are objected to because of the following informalities:

In claim 1, lines 1-2, claim 8, lines 1-2, and claim 9, line 3 “the acoustic likelihood of the results of speech recognition” should be changed to --an acoustic likelihood of results of speech recognition-- in order to provide proper antecedent basis.

In claim 2, line 2, “the number of phonemes” should be changed to --a number of phonemes-- in order to provide proper antecedent basis.

In claim 3, lines 2-3, “the part of speech” should be changed to --a part of speech-- in order to provide proper antecedent basis.

In claim 4, line 2, “the linguistic likelihood” should be changed to --a linguistic likelihood-- in order to provide proper antecedent basis.

In claim 5, lines 5-6, “the stored state” should be changed to --a stored state-- or --the stored result-- in order to provide proper antecedent basis.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1 and 7-8** are rejected under 35 U.S.C. 102(e) as being anticipated by Fissore (*U.S. Patent: 6,185,528*).

With respect to **Claims 1 and 8**, Fissore discloses:

Extraction means for extracting characteristic values of said speech (obtained parametric representations of speech that would inherently require an extraction means and step, Col. 3, Lines 47-55);

Selection means for selecting one or more first words from a group of words to be processed by speech recognition processing, based on a first measure calculated using said characteristic values, and for selecting one or more second words based on a second measure different from said first measure (different types of speech recognizers for producing two n-best lists using a HMM likelihood score and a neural network likelihood score, Col. 3, Line 56- Col. 4, Line 10, wherein each of the word lists differs for each speech recognizer, Col. 6, Lines 6-12);

Score calculation means for calculating said score of said first and second words selected by said selection means (NE and MA recognizers and score processor, Col. 3, Line 47- Col. 4, Line 25); and

Finalizing means for finalizing a word string, as the recognition result of said speech, based on said score (determining a best recognition result, Col. 6, Line 47- Col. 12, Line 12; and certain recognition result, Fig. 4).

With respect to **Claim 7**, Fissore discloses:

The selection means calculates said score using characteristic values of the speech to select said first word based on said score (*selecting a word a word from either recognizer n-best list based on a likelihood score, Col. 6, Line 53- Col. 7, Line 9*).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fissore et al in view of Hon et al (*U.S. Patent: 5,963,903*).

With respect to **Claim 2**, Fissore teaches the speech recognition system utilizing different types of scoring measurements to generate multiple n-best lists, as applied to claim 1. Fissore does not teach the use of a scoring means related to a specific number of phonemes satisfying a pre-set condition, however Hon teaches a means for a non-acoustic ranking and selection of phoneme recognition candidates in a word through a phoneme misrecognition count (Col. 10, Lines 16-51).

Fissore and Hon are analogous art because they are from a similar field of endeavor in speech recognition. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fissore with the phoneme ranking and selection means taught by Hon in order to implement an accurate speech recognition system that does not require a user to speak a large number of words in training (Hon, Col. 5, Lines 15-36).

9. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fissore et al in view of Chiang et al (“On Jointly Learning the Parameters in a Character-Synchronous Integrated Speech and Language Model,” 1996).

With respect to **Claim 3**, Fissore teaches the speech recognition system utilizing different types of scoring measurements to generate multiple n-best lists, as applied to claim 1. Fissore does not teach the use of a scoring means related to a part-of-speech, however Chiang teaches an HMM based recognizer that utilizes part-of-speech tags in scoring to determine a best recognition hypothesis (Page 168, Fig. 1).

Fissore and Chiang are analogous art because they are from a similar field of endeavor in speech recognition. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fissore with the scoring means related to a part-of-speech tag as taught by Chiang in order to achieve an improved recognition rate and a reduced error rate (Chiang, Page 168).

10. **Claims 4 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fissore et al in view of Franz et al (U.S. Patent: 6,178,401).

With respect to **Claim 4**, Fissore teaches the speech recognition system utilizing different types of scoring measurements to generate multiple n-best lists, as applied to claim 1. Fissore does not teach the use of a scoring means related to a linguistic likelihood, however Franz discloses the use of a language model that determines a score based on linguistics (Col. 6, Line 42- Col. 7, Line 6).

Fissore and Franz are analogous art because they are from a similar field of endeavor in speech recognition. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fissore with the scoring means related to a linguistic likelihood as taught by Franz in order to provide a means for enhancing that probability of selecting a correct recognition candidate (Franz, Col. 6, Line 61- Col. 7, Line 6).

With respect to **Claim 9**, Fissore teaches the speech recognition method utilizing different types of scoring measurements to generate multiple n-best lists, as applied to claim 8. Fissore does not specifically teach a model selection method implementation as a program stored on a computer readable medium, however Franz teaches such an implementation (Col. 2, Lines 42-67).

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fissore with the teachings of Franz in order to provide an ability to implement a speech recognition candidate selection method on any type of speech recognition system through the use of a software embodiment (Franz, Col. 2, Lines 42-67).

11. **Claims 5-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fissore et al in view of Holt et al (U.S. Patent: 5,960,447).

With respect to **Claim 5**, Fissore teaches the speech recognition system utilizing different types of scoring measurements to generate multiple n-best lists, as applied to claim 1. Fissore does not teach the use of a storage means for memorizing speech recognition results and using the results in a subsequent recognition, however Holt discloses a means for storing a confidence score from a recognition engine for use in a speech recognition process (Col. 9, Lines 7-61).



Fissore and Holt are analogous art because they are from a similar field of endeavor in speech recognition. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fissore with the confidence score storage means taught by Holt in order to provide an improved means for editing and correcting speech recognition results (Holt, Col. 1, Line 65- Col. 2, Line 21).

With respect to **Claim 6**, Holt further recites:

Inputting means for providing an input for correcting the results of speech recognition; wherein said storage means stores the results of the speech recognition corrected by the input from said inputting means (editing a recognition result and updating a confidence score, Col. 9, Lines 36-61).

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Hsu et al (U.S. Patent: 5,677,991)- teaches a speech recognition system utilizing ISR and CSR matching scores.

Alleva et al (U.S. Patent: 5,710,866)- teaches a means for computing a speech recognition score that comprises acoustic and linguistic scores.

Ittycheriah et al (U.S. Patent: 5,937,383)- teaches two types of speech recognizers in a speech recognition system, each of the recognizers producing different results.

Galler et al (U.S. Patent: 5,991,720)- teaches a speech recognition system utilizing multiple grammar networks that each produces a n-best list.

Tomoeda (U.S. Patent: 6,484,141)- teaches a continuous speech recognition method utilizing language and acoustic model scores.


Jiang et al (U.S. Patent: 6,502,072)- teaches a speech recognition search engine utilizing a lexicon, language models, and acoustic models.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached at (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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2/14/2006

  
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